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EXAMINER	
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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/786,298
Filing Date: February 26, 2004
Appellant(s): PURCELL, STEVEN L

Tony M. Cole
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 06 March 2006 appealing from the Office action mailed 06 October 2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

Bantz (U.S. Patent No. 4,554,724)

Finzel et al. (U.S. Patent No. 6,371,691)

Martinez et al. (U.S. Patent Publication No. 2003/0068143)

* http://en.wikipedia.org/wiki/Asphalt_concrete

* http://en.wikipedia.org/wiki/Bitumen

* *These references are presented as extrinsic evidence only and have not been relied upon by the Examiner in the Grounds of Rejection as follows. They are presented as exhibits of the industrial standard referred to in the rejection of claims 13 and 31.*

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 through 4, 7, 11 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Finzel et al. (U.S. Patent No. 6,371,691 B1).

Finzel et al. '691, as seen in Figures 54 and 55, disclose a method of placing cable beneath a roadway comprising the steps of:

with regard to claim 1,

the steps of cutting a trench (VN) into the surface of the roadway;

placing a duct (VP) in the trench;

filling the trench with a sealer (B);

placing a first cable (MK) with the duct;

pulling the first cable out of, and through the duct; and

placing a second cable (MK) within the duct without removing the sealer within the trench (col. 26, lines 4 through 21);

with regard to claim 2,

wherein the first cable comprises utility cable;

with regard to claim 3,

wherein the first cable comprises optical fiber cable;

with regard to claim 4,

wherein the trench is cut to a depth of approximately 3.5 to 4.0 inches beneath the surface of the roadway (col. 3, lines 1 through 6);

with regard to claim 7,

wherein the trench is cut to a width of approximately 0.5 inches (col. 3, lines 1 through 6);

with regard to claim 11,

further comprising placing sand (20) within the trench; and

with regard to claim 12,

wherein the sealer comprises bitumen (col. 23, lines 54 through 58).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 6 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Finzel et al. (U.S. Patent No. 6,371,691 B1).

Finzel et al. '691 disclose all of the limitations of the claimed method with the exception(s) of:

with regard to claim 6,

the duct comprising high density polyethylene (HDPE); and

with regard to claim 13,

the sealer being heated to between approximately 325 and 375 degrees Fahrenheit before filling the trench.

With regard to claim 6, Finzel et al. '691 teach a polyethylene duct (col. 22, lines 10 through 14) but fail to expressly teach high-density polyethylene (HDPE). However, it is a well-

known expedient in the art of conduits to use HDPE for ducts surrounding cables in subsurface applications because it possesses good impact strength and resistance to damage by chemicals.

With regard to claim 13, while Finzel et al. '691 do not expressly teach the claimed temperature range, it would have been obvious to one having ordinary skill in the art at the time of invention to heat the bitumen sealer to between 325 and 375 degrees Fahrenheit (approximately 162 to 190 degrees Celsius). Specifically, bitumen is the main component of hot mix asphalt and is an industry standard to heat hot mix asphalt to the claimed range to perform the step of mixing prior to laying/paving.

5. Claims 23, 24, 28, 29, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Finzel et al. (U.S. Patent No. 6,371,691 B1) and Martinez et al. (U.S. Patent Publication No. 2003/0068143).

Finzel et al. '691 teach all of the features of the claimed invention (see paragraph 5) and further teach:

with regard to claim 23,

the duct including a tubular material having a hollow inner diameter within the trench;

with regard to claim 24,

the first cable comprising optical fiber cable; and

with regard to claim 29,

the tubular material comprising an outer diameter of approximately 0.5 inch and an inner diameter of approximately 0.375 inch (col. 2, lines 42 through 56).

Finzel et al. '691 disclose all of the limitations of the claimed method with the exception(s) of:

with regard to claims 23 and 32,

removing the first cable without removing the sealer;

with regard to claim 28,

the duct comprising high density polyethylene (HDPE); and

with regard to claim 31,

the sealer being heated to between approximately 325 and 375 degrees Fahrenheit before filling the trench.

Martinez et al. '143 disclose a method for providing fiber optic cable through existing service lines wherein a first cable is pulled out and a second one installed without removing overlying earth.

With regard to claims 23 and 32, it would have been obvious to one having ordinary skill in the art of cable laying at the time of invention to modify the method disclosed by Finzel et al. '691 such that the first cable would be pulled without removing the sealer as suggested by Martinez et al. '143. The motivation would have been to prevent disruption of the roadway.

With regard to claim 28, Finzel et al. '691 teach a polyethylene duct (col. 22, lines 10 through 14) but fail to expressly teach high-density polyethylene (HDPE). However, it is a well-

known expedient in the art of conduits to use HDPE for ducts surrounding cables in subsurface applications because it possesses good impact strength and chemical resistance.

With regard to claim 31, while the combination of Finzel et al. '691 and Martinez et al. '143 does not expressly teach the claimed temperature range, it would have been obvious to one having ordinary skill in the art at the time of invention to heat the bitumen sealer taught by Finzel et al. '691 to between 325 and 375 degrees Fahrenheit (approximately 162 to 190 degrees Celsius). Specifically, bitumen is the main component of hot mix asphalt and is an industry standard to heat hot mix asphalt to the claimed range to perform the step of mixing prior to laying/paving.

6. Claims 8 through 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Finzel et al. (U.S. Patent No. 6,371,691 B1) and Bantz (U.S. Patent No. 4,554,724).

Finzel et al. '691 disclose all of the steps of the claimed method with the exception(s) of:
with regard to claim 8,

placing a spacer with the trench on top of the duct;

with regard to claim 9,

the spacer being tubular in shape; and

with regard to claim 10,

the diameter of the space being approximately 25% larger than a width of the trench.

Bantz '724, as seen in Figure 1, shows a tubular spacer (4) placed in a trench (2) above a series of ducts (3) and beneath a sealer (5), wherein the tubular spacer prevents the sealer from contacting the ducts (col. 3, lines 5 through 9).

With regard to claims 8 and 9, it would have been obvious to one having ordinary skill in the art of cable laying at the time the invention was made to modify the method disclosed by Finzel et al. '691 such that it would include the step of placing a spacer in the trench on top of the duct as taught by Bantz '724 for preventing the sealer from contacting underlying ducts.

With regard to claim 10, while Finzel et al. '691 and Bantz '724 are silent with regard to the size of the spacer, as seen in Figure 1, it is evident that diameter of the spacer is larger than the width of the trench. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made through routine experimentation and optimization to determine an optimal diameter for the spacer since the same would correspond to desired volume of material placed between the sealer and the duct(s).

7. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Finzel et al. (U.S. Patent No. 6,371,691 B1) and Martinez et al. (U.S. Patent Publication No. 2003/0068143) as applied to claim 24 above, and further in view of Bantz (U.S. Patent No. 4,554,724).

Finzel et al. '691 as modified by Martinez et al. '143 disclose all of the steps of the claimed method with the exception(s) of:

with regard to claim 25,

placing a spacer with the trench on top of the duct, the spacer comprising water impermeable, heat resistant material; and

with regard to claim 26,

the diameter of the space being approximately 25% larger than a width of the trench.

Bantz '724, as seen in Figure 1, shows a tubular spacer (4) of water impermeable, heat resistant material placed in a trench (2) above a series of ducts (3) and beneath a sealer (5), wherein the tubular spacer prevents the sealer from contacting the ducts (col. 3, lines 5 through 9).

With regard to claim 25, it would have been obvious to one having ordinary skill in the art of cable laying at the time the invention was made to modify the method disclosed by Finzel et al. '691 and Martinez et al. '143 such that it would include the step of placing a spacer in the trench on top of the duct as taught by Bantz '724 for preventing sealer from contacting underlying ducts.

With regard to claim 26, while Finzel et al. '691, Martinez et al. '143 and Bantz '724 are silent with regard to the size of the spacer, as seen in Figure 1, it is evident that diameter of the spacer is larger than the width of the trench. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made through routine experimentation and optimization to determine an optimal diameter for the spacer since the same would correspond to desired volume of material placed between the sealer and the duct(s).

(10) Response to Argument

A. In response to Appellant's statement that Finzel et al. '691 fails to teach the step of "pulling the first cable out of, and through, the duct," the Examiner contends that a broad and reasonable interpretation of the claim limitation does not require the entire length of cable to be completely pulled through and out of the end of the duct. The step of pulling the first cable out of the duct merely requires the cable to be drawn until its end extends beyond the end of the duct and is inherent to the system shown by Finzel et al. '691. Otherwise, the cable would be of no use because its end would be inaccessible for subsequent connection.

In response to Appellant's statement that Finzel et al.. '691 fails to teach the step of "placing a second cable within the duct without removing the sealer within the trench," the Examiner contends that the reference expressly teaches the step of pulling a first cable through the duct and placing a second cable within the duct without removing the sealer within the trench in the passage set forth in col. 26 at lines 4 through 21.

B. While Appellant appears to separately address the rejection of claims 6 and 13, Appellant fails to present any arguments traversing the same to which the Examiner should respond; therefore, claims 6 and 13 should stand or fall with claim 1.

C. In response to Appellant's statement that Martinez et al. '143 is nonanalogous art, the Examiner contends that the reference directly relates to the process of installing fiber optic cables in a previously buried duct less the step of removing any material overlying the buried duct. The Examiner further directs Appellant to review paragraph 0010 wherein Martinez et al. '143

expressly teach the desirability of using previously buried ducts to obviate the inconvenience of surface disturbance.

D. While Appellant appears to separately address the rejection of claims 8 through 10, Appellant fails to present any arguments traversing the same to which the Examiner should respond; therefore, claims 8 through 10 should stand or fall with claim 1.

E. While Appellant appears to separately address the rejection of claims 25 and 26, Appellant fails to present any arguments traversing the same to which the Examiner should respond; therefore, claims 25 and 26 should stand or fall with claim 23.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

TLM

24 May 2006

Conferees:

Thomas B. Will

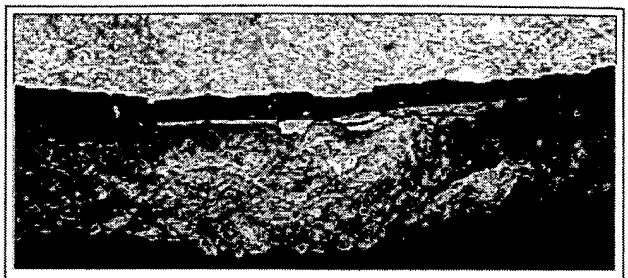
Darnell Jayne

Thomas B. Will
Supervisory Patent Examiner
Group 3600

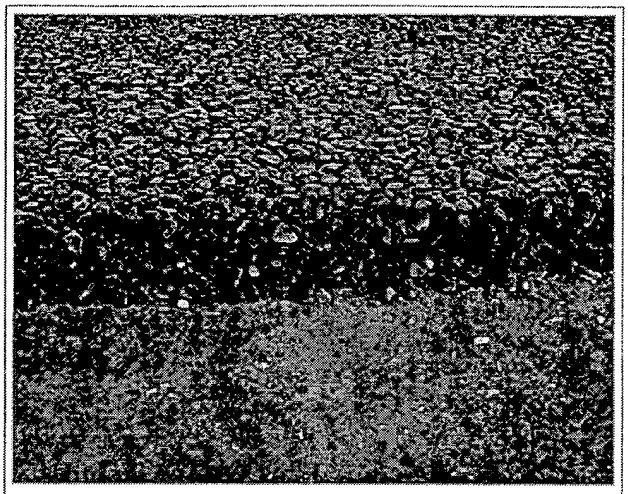
Asphalt concrete

From Wikipedia, the free encyclopedia

Asphalt concrete, normally known simply as asphalt, is a composite material commonly used for construction of pavement, highways and parking lots. It consists of asphalt binder and mineral aggregate mixed together then laid down in layers and compacted.



As shown in this cross-section, many older roadways are smoothed by applying a thin layer of **asphalt concrete** to the existing portland cement concrete.



Base layer of asphalt concrete in a road under construction

Mixing of asphalt and aggregate is accomplished in one of several ways:

- **Hot Mix Asphalt Concrete** (commonly abbreviated as HMAC) is produced by heating the asphalt in order to decrease its viscosity and drying the aggregate to remove moisture from it prior to mixing. Mixing is generally performed at about 160 degrees Celsius, while paving and compaction are performed at about 140 degrees Celsius. HMAC is the form of asphalt concrete most commonly used on highly trafficked pavements such as those on major highways and airfields.
- **Warm Mix Asphalt Concrete** (commonly abbreviated as WMA or WAM) is produced by adding either zeolites, waxes, or asphalt emulsions to the mix. This allows significantly lower mixing and laying temperatures and results in lower consumption of fossil fuels, thus releasing less carbon dioxide, aerosols and vapours. Not only are working conditions clearly improved, but the lower laying-temperature also leads to more rapid availability of the surface for use (in construction sites with critical time schedules).
- **Cold Mix Asphalt Concrete** is produced by emulsifying the asphalt in water with (essentially) soap prior to mixing with the aggregate. While in its emulsified state the asphalt is less viscous and the mixture is easy to work and compact. The emulsion will break after enough water evaporates and the cold mix will, ideally, take on the properties of cold HMAC. Cold mix is commonly used as a patching material and on lesser trafficked service roads.
- **Cut-back Asphalt Concrete** is produced by dissolving the binder in kerosene or another lighter fraction of petroleum prior to mixing with the aggregate. While in its dissolved state the asphalt is less viscous and the mix is easy to work and compact. After the mix is laid down the lighter fraction evaporates. Due to the resulting air pollution cut-backs have been illegal in the US since the 1970s. They are still widely used in Europe and the rest of the world, especially for recycling old asphalt pavement.

In addition to the asphalt and aggregate, additives, such as polymers, and antistripping agents may be added to

improve the properties of the final product.

Natural asphalt concrete can be found in some parts of the world where rock near the surface has been impregnated with upwelling asphalt.

The term *asphalt concrete* is typically only used in engineering jargon. It is often called just asphalt by laypersons who tend to associate the term concrete with portland cement concrete only. The engineering definition of concrete is any composite material composed of mineral aggregate stuck together with a binder, whether that binder is portland cement, asphalt or even epoxy.

Asphalt concrete is often touted as being *100% Recyclable*. Several in-place recycling techniques have been developed to rejuvenate oxidized binders and remove cracking, although the recycled material is generally not very water-tight or smooth and should be overlaid with a new layer of asphalt concrete. Asphalt concrete that is removed from a pavement is usually stockpiled for later use as a base course material.

Very little asphalt concrete is actually disposed of in landfills. Sometimes waste materials, such as rubber from old tires, are added to asphalt concrete but there is a concern that the hybrid material may not be recyclable.

Asphalt concrete pavements—especially those at airfields—are sometimes called tarmac for historical reasons, although they do not contain tar and are not constructed using the macadam process.

See also

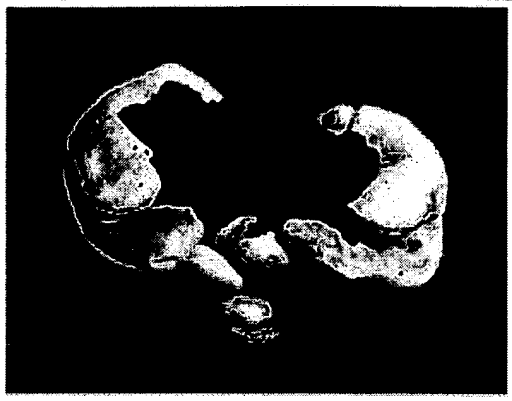
- Free floating screed

Retrieved from "http://en.wikipedia.org/wiki/Asphalt_concrete"

Categories: Concrete | Construction | Materials | Streets and roads | Pavements

Bitumen

From Wikipedia, the free encyclopedia



Bitumen

Bitumen is a category of organic liquids that are highly viscous, black, sticky and wholly soluble in carbon disulfide. Asphalt and tar are the most common forms of bitumen.

In British English, 'bitumen' is often used interchangeably with both 'asphalt' and 'tar'. In American English, 'bitumen' is most commonly used in engineering jargon to explicitly include both asphalt- and tar-based materials. In Australian English, 'bitumen' is used as the generic term for road surfaces.

Bitumen in the form of asphalt is obtained by fractional distillation of crude oil. Bitumen being the heaviest and being the fraction with the highest boiling point, it appears as the bottommost fraction.

Bitumen in the form of tar is obtained by the destructive distillation of organic matter, usually bituminous coal.

Bitumen is primarily used for paving roads. Its other uses are for the general waterproofing products, including the use of bitumen in the production of roofing felt and for sealing flat roofs. It is also the prime feed stock for petroleum production from tar sands currently under development in Alberta, Canada.

In the past, bitumen was used to waterproof boats, and even as a coating for buildings; it is possible, for example, that the city of Carthage was easily burnt down due to extensive use of bitumen in construction.

Vessels for the heating of bitumen or bituminous compounds are usually excluded by public liability insurance policies.

Most geologists believe that naturally occurring deposits of bitumen are formed from the remains of ancient, microscopic algae and other once-living things. These organisms died and their remains were deposited in the mud on the bottom of the ocean or lake where they lived. Under the heat and pressure of burial deep in the earth, the remains were transformed into materials such as bitumen, kerogen, or petroleum.

A minority of geologists, proponents of the theory of abiogenic petroleum origin, believe that bitumen and other hydrocarbons heavier than methane originally derive from deep inside the mantle of the earth rather than biological detritus.

See also

- Pitch (resin)
- Pitch drop experiment

Categories: Petroleum products